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ABSTRACT

This study was conducted in an attempt to analyze selected aspects of the social milieu surrounding elementary school children. The relationship between the two techniques used in measuring this social environment was also of interest. Fourth and fifth grade students' affective reactions to the following stimuli on both techniques formed the data base: home, friends, mother, self, father, school, teacher, principal. Of primary interest in this study was the attempt to predict or explain the students' reactions to the above stimuli on the basis of the following effects: grade level, teacher sex, student sex, student behavior, and student reading achievement. Results indicated that the combined techniques were most valid in measuring the students' affective reactions to the following stimuli: mother, father, school, teacher, and principal. Based on the eight dependent variables for each technique the overall multivariate hypotheses were significant for these main effects: (1) grade level; (2) teacher sex; and (3) student sex. Of primary interest was the finding that the students' affective reactions to the concepts of school, teacher, and principal varied significantly depending on reading performance. (Author)

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A Multivariate Study of Two Techniques For Analyzing Social Variables in the Classroom

BY

Steven J. Kidder

The Johns Hopkins University

CG 006 385

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1

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A MULTIVARIATE STUDY OF TWO TECHNIQUES FOR ANALYZING SOCIAL VARIABLES IN THE CLASSROOM

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ABSTRACT

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This study was conducted in an attempt to analyze selected aspects of the social milieu surrounding elementary school children. ~~The relationship between the two techniques (one semi-projective, one verbal) used in measuring this social environment was also of interest~~. Fourth and fifth grade students' affective reactions to the following stimuli on both techniques formed the data base: home, friends, mother, self, father, school, teacher, principal. Of primary interest ~~in this study~~ was the attempt to predict or explain the students' reactions to the above stimuli on the basis of the following effects: grade level (4th to 5th), teacher sex, student sex, student behavior (as perceived by his teacher), and student reading achievement. The results indicated that the combined techniques were most valid in measuring the students' affective reactions to the following stimuli: mother, father, school, teacher, and principal. ~~Based on the eight dependent variables for each technique the overall multivariate hypotheses were significant for these main effects: (a) grade level, (b) teacher sex, and (c) student sex.~~ Of primary interest was the finding that the students' affective reactions to the concepts of school, teacher, and principal varied significantly depending on the sex of the teacher and the student's position in the classroom with regard to reading performance.

CLASSROOM ENVIRONMENT
EDUCATIONAL RESEARCH
ELEMENTARY SCHOOL STUDENTS
SOCIAL INFLUENCES
STUDENT ATTITUDES

INTRODUCTORY STATEMENT

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through five programs to achieve its objectives. The Academic Games program has developed simulation games for use in the classroom, and is studying the processes through which games teach and evaluating the effects of games on student learning. The Social Accounts program is examining how a student's education affects his actual occupational attainment, and how education results in different vocational outcomes for blacks and whites. The Talents and Competencies program is studying the effects of educational experience on a wide range of human talents, competencies and personal dispositions, in order to formulate--and research--important educational goals other than traditional academic achievement. The School Organization program is currently concerned with the effects o' student participation in social and educational decision making, the structure of competition and cooperation, formal reward systems, ability-grouping in schools, effects of school quality, and applications of expectation theory in the schools. The Careers and Curricula program bases its work upon a theory of career development. It has developed a self-administered vocational guidance device to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report, prepared within the Academic Games program, analyzes the affective nature of the social environment surrounding fourth and fifth grade students.

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This paper summarizes the author's doctoral dissertation while studying at the State University of New York at Albany. The author expresses his appreciation to his advisors James Kuethe, John Rosenbach, Richard Clark, and Robert Pruzek.

A MULTIVARIATE STUDY OF TWO TECHNIQUES
FOR ANALYZING SOCIAL VARIABLES IN THE CLASSROOM

In the past, few studies (i.e., Cheong, 1967; Glick, 1969; Jackson and Lahaderne, 1967; and Strickland, 1970) have incorporated more than one or two measures of the social climate within the elementary classroom. These studies have relied mostly on standard sociometric techniques. They have not included direct measures of the students' affective reactions to all of the important social figures, both in and out of the classroom. Dunn (1968) has incorporated affective aspects of the school environment with special reference to school anxiety, plus liking and valuing academics. The present study corroborates one of Dunn's findings (i.e., as children grow older negative affect for school increases). Dunn, however, included both academic and social aspects of the school without specifying the social stimuli or test items under consideration. The present study provides evidence for some differentiation of affect across the social stimuli. For instance, if the social stimuli for "school" in toto were the principal and school then the increase in negative affect would probably be obtained. However, if the teacher as a specific stimulus were included, negative affect might decrease from one grade to another depending on the ratio of male to female teachers.

Schmuck (1963) noted that a child who perceives that his sociometric status is low may react negatively to the school environment and usually develops less self-esteem. Within a similar context, Weinstein

(1965) found (using a variation of one of the techniques used in the present study) that the social schemata[1] of emotionally disturbed boys had greater interpersonal distances than the social schemata of normal boys. Weinstein's findings were verified by Fisher (1967).

In an attempt to analyze the more important dimensions of the social environment of fourth- and fifth-grade students, the present study incorporated their affective reactions (measured by two independent techniques) to the following stimuli: (a) home, (b) best friends, (c) mother, (d) self, (e) father, (f) school, (g) teacher, and (h) principal. The main purpose of the study was to explain or predict the reactions to home- and school-related stimuli from the following main effects: (a) grade level (4th and 5th), (b) teacher sex, (c) student sex, (d) student behavior (as perceived by the teacher), and (e) student reading achievement. In general, it was hypothesized that the psychological distances as measured by the combined placement and semantic differential tasks would vary depending upon selected aspects of the social milieu surrounding those elementary students sampled. In particular, it was predicted that certain differential reactions obtained from these students might be explained on the basis of such influences as the sex of the teacher within those classes sampled. Thus, five main questions were raised concerning the effects external influences might have had on the students' reactions to the concepts or stimuli employed on each instrument.

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[1]As measured by Kuethe's Felt Figure Technique (1964).

Question 1 (effect of grade level). Will the students who have received the instrument during their fourth grade experiences react differently to the same instrument when administered during their fifth grade experience?

Question 2 (effect of teacher sex). Will students with male teachers react differently to the instrument than students with female teachers?

Question 3 (effect of student sex). Will boys and girls in fifth grade react differently to the stimuli on the instrument?

Question 4 (effect of perceived student behavior). Will a student's classroom behavior as perceived by his teacher affect a student's reactions to the social stimuli on the instrument?

Question 5 (effect of student reading achievement). Will good readers in the classes sampled react differently to the instrument than poor readers?

METHOD

Sample

The sample for the study consisted of 275 fifth-grade students from a suburban school district, within a white middle-class community. A subsample of 128 of these students had been previously sampled when in grade four. There had been no systematic placement of students in particular classes at either grade. The fifth-grade sample consisted of students in classes conducted by five male teachers and five female teachers. In the subsample only one out of seven fourth-grade teachers had been male.

Variables

The dependent variables were the students' affective reactions to the social stimuli under consideration.

Two independent techniques were used to measure these variables. In the first technique developed by Kuethe (1967), each student was given a task booklet containing 8½ x 11 inch pages, with each page having an outline stimulus figure (e.g., home, friends, mother) on the right-hand edge. Each student was asked to lick a "self stamp" and place it anywhere he wanted on each page having one of the stimulus figures. The "self stamp" was an outline figure of a young boy or girl on a gum-backed paper 5 x 5 centimeters.

In the second technique, each student was asked to check bipolar adjective scales for each of the social stimuli. The bipolar adjectives used included (a) soft-hard, (b) near-far, (c) nice-awful, (d) certain-uncertain, (e) safe-dangerous, (f) quiet-noisy, (g) strong-weak, (h) fair-unfair, (i) kind-cruel. The semantic differential (S.D.) variables were based on five-point rating scales. Scores for each concept were sums across the nine bipolar scales and could range from nine (a very positive affective relation to the concept) to forty-five (a very negative affective relation to the concept). For a more detailed description of the instruments used, see Kidder (1970).

The dependent variables are defined below. The first eight definitions refer to separate tasks included on the technique developed by Kuethe. The last eight definitions refer to the semantic differential

ratings of each concept used as stimulus on Kuethe's task. It was predicted that Kuethe's placement task variables (definitions 1-8 below) and the semantic differential variables (definitions 9-16) would be positively correlated.

(1) SelfHo - self-to-home placement task variable number one, represented by the distance in centimeters between each child's self stamp and an outline figure re presenting the child's home.

(2) SelfFr - self-to-friends placement task variable number two, represented by the distance in centimeters between each child's self stamp and an outline figure representing the child's best friends.

(3) SelfMo - self-to-mother placement task variable number three, represented by the distance in centimeters between each child's self stamp and an outline figure representing the child's mother.

(4) SelfSe - self-to-self placement task variable number four, represented by the distance in centimeters between each child's self stamp and an outline figure representing himself.

(5) SelfFa - self-to-father placement task variable number five, represented by the distance in centimeters between each child's self stamp and an outline figure representing the child's father.

(6) SelfSc - self-to-school placement task variable number six, represented by the distance in centimeters between each child's self stamp and an outline figure representing the child's school.

(7) SelfTe - self-to teacher placement task variable number seven, represented by the distance in centimeters between each child's self stamp and an outline figure representing the child's school.

(8) SelfPr - self-to-principal placement task variable number eight, represented by the distance in centimeters between each child's self stamp and an outline figure representing the child's principal.

(9) SemRHo - semantic-rating-on-home; S.D. variable number one, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My Home."

(10) SemRFr - semantic-rating-on-friends; S.D. variable number two, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My Best Friends."

(11) SemRMo - semantic-rating-on-mother; S.D. variable number three, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My Mother."

(12) SemRSe - semantic-rating-on-self; S.D. variable number four, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "Myself."

(13) SemRFa - semantic-rating-on-father; S.D. variable number five, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My Father."

(14) SemRSc - semantic-rating-on-school; S.D. variable number six, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My School."

(15) SemRTe - semantic-rating-on-teacher; S.D. variable number seven, represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My Teacher."

(16) SemRPr - semantic-rating-on-principal; S.D. variable number eight represented by the sum of the values checked by each child across all bipolar adjective scales for the concept "My Principal."

An estimate of the disruptive behavior of students in the classroom was obtained from all teachers by using a modified form of an instrument originally developed by Bower (1961). The teacher was required to place the initials of each student in her class in one of several boxes within a pyramid with reference to that student's relative position on a seven-point scale for disruptive behavior in the classroom. The instrument forces teachers to discriminate among students because there are fewer boxes for classifying extreme cases. The teacher must classify the students within a normal distribution for the trait under consideration. Thus, each student was classified with reference to a scale from one to seven (least disruptive to most disruptive) by his teacher. After rating each student on behavior, the teachers were requested to classify the students with regard to reading performance. Three categories for reading achievement were used: top (3), middle (2), or bottom (1) of class.

Analyses

The data obtained on the sixteen dependent measures described above were analyzed for basic psychometric relationships and predictability. The former analysis was based on the criteria suggested by Campbell and Fiske (1959), the latter on multivariate analysis of variance (MANOVA).[3] Logarithmic transformation of the eight Kuethe placement task variables were performed due to excessive skewness. The eight S.D. variables did not require transformation.

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[3]The author wishes to thank Dr. Jeremy D. Finn, State University of New York at Buffalo for the use of the computer program "Multivariance."

Table 1

Correlation Matrix for Fifth Grade Sample (N = 275)
With Placement Task Variables (1 - 8) and Semantic Differential Variables (9 - 16)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 SelfHo	1.00															
2 SelfFr	.27	1.00														
3 SelfMo	.20	.26	1.00													
4 SelfSe	.25	.18	.01	1.00												
5 SelfFa	.31	.27	.27	.20	1.00											
6 SelfSc	.11	.18	.17	.05	.05	1.00										
7 SelfTe	.12	.09	.18	.09	.23	.38	1.00									
8 SelfPr	.07	.14	.08	.13	.07	.44	.24	1.00								
9 SemRHo	.22*	.26	.30	.08	.15	.16	.24	.11	1.00							
10 SemRFr	.10	.18	.03	.04	.04	.18	.18	.04	.46	1.00						
11 SemRMo	.14	.20	.35*	.12	.11	.19	.13	.11	.57	.36	1.00					
12 SemRSe	.14	.15	.08	.11	.09	.12	.06	.09	.31	.29	.21	1.00				
13 SemRFa	.14	.14	.19	.06	.26*	.10	.30	.07	.50	.43	.44	.34	1.00			
14 SemRSc	.07	.09	.21	.01	.00	.49*	.30	.27	.30	.45	.38	.22	.34	1.00		
15 SemRTe	.11	.09	.13	.02	.10	.34	.53*	.18	.35	.34	.38	.23	.43	.47	1.00	
16 SemRPr	.05	.12	.11	.02	.06	.39	.18	.33*	.27	.43	.33	.23	.31	.67	.43	1.00

p < .025, one-tailed test.

RESULTS

Table 1 contains the intercorrelation matrix for the total fifth-grade sample (N = 275). Because there were two independent techniques for assessing the students' affective reactions to the same social stimuli, this intercorrelation matrix represents a multitrait-multimethod block as defined by Campbell and Fiske (1959). The monotrait-heteromethod block is outlined in Table 1. The values on the validity diagonal (sometimes referred to as the monotrait-heteromethod validity diagonal) are underlined. When the values on the validity diagonal are significant and large there is evidence for convergent validity. Thus, there is convergent validity for the affective reactions to the following concepts as measured by both techniques (in order of significance): (a) teacher, (b) school, (c) mother, (d) principal, (e) father, (f) home. More of the larger correlations across techniques are associated with the school-related variables. Two of the three criteria for discriminant validity are met for these significant variables (see Campbell and Fiske, 1959). The third criterion (that a variable correlates higher with an independent effort to measure the same trait than with measures designed to get at different traits which happen to employ the same method) is met for comparisons within the monomethod triangle for the Kuethe placement variables, but not in the monomethod triangle for the semantic differential variables. The estimates of the child's affective reactions seem most valid for the school-related variables. Thus, interpretations based on the multivariate analyses provided below are tentative with reference to variables other than the school-related ones.

Table 2

Observed Means for Students (N = 128) Sampled
At Fourth and Fifth Grades

Variables	Fourth Grade	Fifth Grade
SelfHo	1.42	1.31
SelfFr	1.26	1.24
SelfMo	1.35	1.38
SelfSe	0.94	0.85
SelfFa	1.38	1.15
SelfSc	1.97	2.24
SelfTe	1.85	1.74
SelfPr	2.22	2.26
SemRHo	18.64	21.51
SemRFr	19.41	20.75
SemRMo	16.25	17.70
SemRSe	18.35	19.76
SemRFa	16.20	17.71
SemRSc	28.23	31.60
SemRTe	22.01	20.75
SemRPr	24.83	29.30

Table 2 contains the mean placements and ratings for both sexes at the fourth and fifth grades.[4]

It can be seen from Table 2 that there is a general tendency to react more negatively (as indicated by larger distances and ratings) to the school-related variables as the children pass from fourth to fifth grade. This tendancy is verified in Table 3 which contains the MANOVA for the grade-level effect. The overall multivariate F-test was significant. With reference to the univariate and step-down analyses, it becomes apparent that both school- and home-related variables contributed to the overall effect.[4] Statistically significant grade-level effects were found for "school" and "father" on the sticker placement task and for "principal," "school," "father," and "home" on the semantic differential. Interpretations based on the student's reaction to the concept of "my father" must be tentative due to the inconsistent findings across methods for this variable. It is interesting to note in Table 2 that the students reacted more positively to the mother and father concepts on the S.D. task than to themselves.

Table 4 contains the observed means for the fifth-grade students (N = 275) having male or female teachers. The classes were evenly divided between male (5) and female (5) teachers.

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[4]This represents a subsample of the total fifth-grade sample with data at both grade levels. All other main effects were analyzed based on the total fifth-grade sample.

[5]The variables were ordered with regard to their anticipated ability to account for the variance associated with the effect being tested. This relates to the computer algorithm for the step-down test in that more stringent tests are made for those variables not of primary interest (i.e., those further down in list).

Table 3

Test of Grade-Level Effect (4th to 5th)
Across All Dependent Measures

F-Ratio for Multivariate Test of Equality of Mean Vectors = 3.52
Degrees of Freedom = 16.00 and 273.00 p Less Than .0001

Variable	Hypothesis Mean Sq.	Univariate F	p Less Than	Step-Down F	p Less Than
1 SelfTe	0.71	1.13	.290	1.13	.290
2 SemRTe	101.25	1.05	.306	0.45	.503
3 SelfPr	0.12	0.15	.698	0.61	.437
4 SemRPr	1278.06	12.12	.001*	19.66	.001*
5 SelfSc	4.69	5.37	.021*	4.47	.036*
6 SemRSc	725.63	8.03	.005*	2.16	.143
7 SelfSe	0.52	0.61	.435	0.88	.349
8 SemRSe	126.56	2.35	.127	1.82	.178
9 SelfFr	0.04	0.10	.752	0.10	.747
10 SemRFr	114.22	1.91	.168	0.43	.515
11 SelfMo	0.07	0.16	.692	0.04	.842
12 SemRMo	135.14	2.33	.129	.026	.610
13 SelfFa	3.42	7.35	.007*	6.66	.011*
14 SemRFa	147.02	3.40	.066	4.48	.029*
15 SelfHo	0.74	1.75	.187	0.98	.324
16 SemRHo	526.13	13.68	.001*	8.72	.004*

Degrees of Freedom for Univariate Test of Hypothesis = 1
Degrees of Freedom for Error = 252
* Significant at Level Specified

Table 4

Observed Means for Fifth-Grade Students (N = 275)
Having Male or Female Teachers

Variables	Male Teachers (N = 134)	Female Teachers (N = 141)
SelfHo	1.43	1.39
SelfFr	1.32	1.24
SelfMo	1.45	1.35
SelfSe	1.18	0.75
SelfFa	1.37	1.15
SelfSc	1.95	2.17
SelfTe	1.57	1.79
SelfPr	2.33	2.10
SemRHo	20.63	21.67
SemRFr	20.49	21.70
SemRMo	17.50	17.28
SemRSe	19.75	19.26
SemRFa	17.70	18.01
SemRSc	31.25	31.62
SemRTe	18.51	23.30
SemRPr	30.52	27.87

The most apparent differences lie within the school-related variables. The MANOVA for the teacher-sex effect for the fifth-grade sample is provided in Table 5.

The overall multivariate test of this effect was also significant. Those variables accounting for this effect and their related affect are as follows: (a) SelfTe - more negative under female teachers, (b) SemRTe - more negative under female teachers, (c) SelfPr - more negative under male teachers, (d) SemRPr - more negative under male teachers, (e) SelfSe - more negative under male teachers, (f) SelfFa - more negative under male teachers. An interesting pattern is represented here. Except for the affective reaction to the concept of "my teacher," the students in class with male teachers reacted more negatively to the concepts noted above than students in classes with female teachers. Female teachers are rated more negatively than male teachers. Ironically, though, the students in classes with female teachers rated the other school-related variables more positively than the students with male teachers.

Table 6 contains the observed means for the fifth-grade sample for male and female students.

It is apparent that the male students reacted, in general, more negatively to the concepts rated on the S.D. tasks. The results of the MANOVA for the student-sex effect are provided in Table 7.

If reference is made to the observed means for this effect in Table 6 one will notice that the male students did react more negatively on the significant variables than the female students except on the SelfSe and

Table 5

Test of Teacher-Sex Effect
Across All Dependent Measures

F-Ratio for Multivariate Test of Equality of Mean Vectors = 5.42
Degrees of Freedom = 16.00 and 240.00 p Less Than .0001

Variable	Hypothesis Mean Sq.	Univariate F	p Less Than	Step-Down F	p Less Than
1 SelfTe	3.29	6.32	.013*	6.32	.013*
2 SemRTe	1607.11	19.89	.001*	14.32	.001*
3 SelfPr	3.51	4.70	.031*	9.09	.003*
4 SemRPr	464.06	4.44	.036*	12.40	.001*
5 SelfSc	3.29	3.93	.049*	10.60	.001*
6 SemRSc	12.73	0.14	.710	0.50	.479
7 SelfSe	12.89	15.44	.001*	12.62	.001*
8 SemRSe	14.53	0.29	.593	0.75	.388
9 SelfFr	0.42	1.12	.292	0.09	.764
10 SemRFr	108.12	1.83	.178	2.99	.085
11 SelfMo	0.75	1.46	.228	1.90	.170
12 SemRMo	2.32	0.04	.835	0.14	.705
13 SelfFa	3.39	7.80	.006*	4.93	.037*
14 SemRFa	8.03	0.18	.674	0.01	.941
15 SelfHo	0.14	0.29	.591	0.84	.362
16 SemRHo	76.64	2.04	.155	1.94	.165

Degrees of Freedom for Univariate Test of Hypothesis = 1
Degrees of Freedom for Error = 255
* Significant at Level Specified

Table 6

Observed Means for Male and Female Students
In Fifth Grade

Variables	Male Students (N = 134)	Female Students (N = 141)
SelfHo	1.35	1.46
SelfFr	1.26	1.30
SelfMo	1.45	1.35
SelfSe	0.94	0.99
SelfFa	1.22	1.30
SelfSc	2.18	1.95
SelfTe	1.79	1.59
SelfPr	2.05	2.37
SemRHo	22.35	20.04
SemRFr	23.35	18.99
SemRMo	19.39	15.51
SemRSe	21.07	18.01
SemRFa	19.31	16.48
SemRSc	34.44	28.60
SemRTe	23.28	18.78
SemRPr	32.07	26.39

Table 7

Test of Student-Sex Effect For Fifth Grade Sample

F-Ratio for Multivariate Test of Equality of Mean Vectors = 4.99
Degrees of Freedom = 16.00 and 240.00 p Less Than .0001

Variable	Hypothesis Mean Sq.	Univariate F	p Less Than	Step-Down F	p Less Than
1 SelfTe	2.81	5.41	.021*	5.41	.021*
2 SemRTe	1388.80	17.19	.001*	12.44	.001*
3 SelfPr	6.88	9.21	.003*	14.82	.001*
4 SemRPr	2220.16	21.26	.001*	16.33	.001*
5 SelfSc	3.45	4.13	.043*	1.77	.185
6 SemRSc	2346.90	25.52	.001*	3.91	.049*
7 SelfSe	0.17	0.20	.656	0.10	.755
8 SemRSe	646.50	12.78	.001*	3.74	.055
9 SelfFr	0.14	0.36	.548	0.85	.358
10 SemRFr	1309.02	22.14	.001*	3.33	.069
11 SelfMo	0.64	1.24	.266	0.55	.461
12 SemRMo	1017.10	19.05	.001*	5.84	.016*
13 SelfFa	0.37	0.85	.357	2.14	.145
14 SemRFa	550.71	12.19	.001*	0.02	.886
15 SelfHo	0.83	1.68	.197	0.91	.340
16 SemRHo	368.30	9.78	.002*	0.19	.669

Degrees of Freedom for Univariate Test of Hypothesis = 1
Degrees of Freedom for Error = 255
* Significant at Level Specified

SelfPr variables. This may be due to chance or the less sensitive nature (lower method variance) of Kuethe's placement task. Nevertheless, the overall negativity expressed by the male students requires explanation.

The MANOVA for the student-behavior effect was not significant. However, there was a tendency for the more disruptive students to react more negatively to the school-related variables, except for the extreme disruptors. The extreme classroom disruptors (about 80 percent male) reversed this tendency by rating the school-related variables less negatively than the "next-to-most-disruptive" students.

The overall multivariate hypothesis for the reading-achievement effect was not significant. However, there were some trends in the data. Table 8 contains the observed means on the school-related S.D. variables on students classified by teacher sex and reading performance estimated by their teachers. It can be seen from this table that there is a progressive increase in negative affect for the school and principal as one proceeds from good to bad readers. A test of the simple effect for bottom-readers on the S.D. rating for school was significant ($F = 5.79$, $df = 1/263$, $p < .05$). Of greater interest is the fact that the above pattern of negativity remains for the school and principal ratings when one blocks on sex of teacher but the S.D. rating on the teacher is markedly different. The apparent interaction of teacher-sex by student-reading performance for the semantic rating on teacher was significant ($F = 6.86$, $df = 1/263$, $p < .01$). Poor readers with male teachers do not rate their teachers as negatively as do poor readers with female teachers.

Table 8

Observed Means on School Related Semantic Differential Variables
For Students Classified by Reading Achievement and Teacher Sex

	Relative Placement In Reading[1]			With Male Teachers		With Female Teachers	
Variables	Top (91)	Middle (74)	Bottom (110)	Top (39)	Bottom (37)	Top (52)	Bottom (37)
SemRSc	28.81	31.60	34.45	29.44	33.57	28.35	35.32
SemRTe	20.29	20.05	23.18	18.92	18.00	21.31	28.35
SemRPr	26.93	28.08	33.50	28.62	35.27	25.67	31.73

[1]Values in parentheses are cell N's.

DISCUSSION

The following discussion has two main divisions; one based on the psychometric relationship between the placement task and the semantic differential task, and the second based on the main questions asked in the study.

In reference to the psychometric relationship between the placement task and the S.D. task, an interesting analogy is apparent with a definition of attitudes provided by Likert (1932). Likert suggested that:

> Contemporary definitions of attitudes cluster about two chief conceptions: first, that attitudes are dispositions toward overt action, and second, that they are verbal substitutes for overt action.

The placement task used does involve an overt action in response to a specific stimulus and thus represents a second-order or semi-projective estimate of Likert's "disposition toward overt action." The S.D. task involves verbal evaluation of specific concepts which represents a manifestation in symbolic form of this "disposition toward overt action." When the affective components of the attitude being measured are sufficiently potent, then the correlation between two independent measures of the attitude should be relatively high. The latter was obtained for the across-technique correlations on the same traits for the concepts of teacher and school. However, even though the other traits being measured did not have high convergent validity, the results could be due to the semi-projective nature of Kuethe's placement task which

does not allow for sufficient variability in response as does the S.D. task. The S.D. task tends to supply a better estimate of the affective meaning system surrounding each concept being evaluated while the placement task provides a less structured representation of the underlying affective reaction to each stimulus figure. Perhaps other dimensions of meaning are manifest in Kuethe's placement task and only when evaluative meaning is pre-potent for a particular schema will the correlation with an S.D. task be higher. Interestingly, those variables with the highest validity coefficients were always the dependent variables of greatest significance in each MANOVA. The school- and not the home-related variables were most important. This seems logical primarily because the focus of the study was the classroom and the independent effects were dimensions of this classroom environment.

Previous studies have found that children's attitudes toward school become more negative as the children grow older (see Dunn, 1968). This finding is supported by the present study. However, this does not mean that the students' attitude toward the teacher has to deteriorate as well. It may not if the number of male teachers is large enough in subsequent years to at least counterbalance the overall effect of female teachers. In the present study, one out of seven fourth-grade teachers was male while five out of ten were male in the fifth-grade sampling. Thus, the more positive rating for teacher in fifth grade could be related to the number of male teachers. In fact, the students who had male teachers in fifth grade rated "teacher" more positive than those who had female teachers. Thus, the students reacted more negatively from fourth to fifth grade on the school variable, while decreasing their negative affect for the teacher variable.

The effect of teacher sex at the fifth grade was involved. There were five male and five female teachers for this sample of students. The most interesting relationships were obtained for the semantic ratings on teacher and principal. All principals in the sample were male and yet the students with male teachers rated their principals more negatively than did students with female teachers. Treating the affective reaction to teacher and principal as a closed system, some hypotheses for further study are apparent. The sum of the ratings for teacher and principal was 49.03 for students with male teachers, and 51.17 for students with female teachers. Even though the total affect associated with both concepts was nearly equal, its distribution to each stimulus was quite different. In fact, the students with male teachers rated their teachers as positively as they rated their fathers. The students with female teachers rated their teachers more negatively but retained a more positive attitude toward their male principals.

The male students responded more negatively than the female students to ten out of sixteen stimuli. This is consistent with previous research. Even though the boys were more negative on the semantic differential variables, they still rated their fathers slightly less negatively than their mothers. The girls reversed this trend by rating their mothers less negatively than their fathers. There is probably an identification phenomenon working here. The female students' less negative reaction to the school-related variables is consistent with their more acceptable nature within the school. Because their behavior parallels what is expected of "good students" in general, they react less

negatively to the system than boys, whose behavior is not always within acceptable patterns. This hypothesis may also be related to achievement in the classroom and teacher sex. Poor readers rate their male teachers less negatively than female teachers even when three out of five poor readers are male. This finding combined with the complex relationship between teacher sex and student behavior in the classroom points to the need for finer measures of the students' affective reactions to home- and school-related variables.

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